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08/876,179 06/13/97 LEE

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EXAMINER

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GUSHI, R

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PAPER NUMBER

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UNITED STATES DEPARTMENT OF COMMERCE  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 31

Application Number: 08/876179  
Filing Date: 6/13/97  
Appellant(s): Lee et al.

Robert Bushnell  
For Appellant

10 2800

**EXAMINER'S ANSWER**

This is in response to appellant's brief on appeal filed 10/23/00.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

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A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect to the extent that the amendment after final rejection filed on 10/23/00 has not been entered.

**(5) *Summary of Invention***

The summary of invention contained in the brief is deficient because it does not refer to the specification by page and line and to the drawings with reference numbers.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 1-18 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7). Applicant's groupings of claims is inconsistent with the arguments because applicant makes arguments regarding dependent claims.

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**(8) Claims Appealed**

Claims 1-18 contain(s) substantial errors as presented in the Appendix to the brief.

Accordingly, claim correctly written in the Appendix to the examiner's answer.

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5667408	Broschard, III et al.	9/1997
5378160	Yumibe et al.	1/1995
5259777	Schuder et al.	11/1993

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-8, 10, 12, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yumibe et al. ("Yumibe").

Regarding claim 1 (twice amended), the admitted prior art teaches a hard disk drive comprising:

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A body;

A spindle motor 30 supported by the body;

A first connector 28 attached to the body;

A first printed circuit board 46 attached to said body and connected to said spindle motor;  
and a plurality of contacts 48 mounted on said first printed circuit board;

A second printed circuit board 10 comprising:

A second connector 18 engageable with the first connector of the disk assembly while the  
second printed circuit board is attached to the disk assembly; and

A third connector 40 comprising a plurality of terminals 42 attached to the second printed  
circuit board, and said contact connector of the second printed circuit board electrically engaging  
the contacts of the disk assembly to transfer signals between the second printed circuit board and  
the spindle motor when the second connector is engaged with the first connector.

The admitted prior art does not teach that the contact connector automatically engages the  
contacts.

Yumibe teaches a connector for connecting the conductors on a first printed circuit  
board 30 to the conductors of a second printed circuit board 34. At the time of the invention, it  
would have been obvious to a person of ordinary skill in the art to modify the hard disk drive of  
the admitted prior art by replacing the connector 40 with the connector 10 as taught by Yumibe.  
The suggestion or motivation for doing so would have been to optimize space utilization and

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minimize the space between the adjacent boards, as taught by Yumibe (see col. 1, lines 19-21, 40-45).

Per claims 2, 7, 12 (amended), the Yumibe terminals 42 are formed of an elastic, flexible, material.

Per claims 3, 8, (twice amended), the first printed circuit board of the admitted prior art is flexible.

Per claims 4, 10, (amended), 14 the Yumibe terminals 42 are P-shaped.

Per claims 6, 12, the admitted prior art teaches that the second printed circuit board 10 comprises a base and a second connector 18 attached to the base, and a plurality of terminals 42 attached to the base. As modified by Yumibe, by replacing the admitted prior art connector 40 with the Yumibe connector, the terminals would have been in automatically abutting contact with the contacts of the disk assembly when the first connector was engaged with the second connector.

Per claim 15, in the admitted prior art, the Yumibe terminals are hook shaped.

Per claim 17, the admitted prior art first and second connectors are 14 pin connectors.

Regarding claim 18, the prior art teaches a "4 pin type of connector." Yumibe does not specifically teach a "4 pin type connector," rather Yumibe shows an 8 terminal configuration for connecting to a circuit board with 8 contact pads (see for example figure 6). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the 8 terminal connector of Yumibe into a 4 terminal connector, for example by halving the connector

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shown in figure 6. The suggestion or motivation for doing so would have been to use the Yumibe device with the circuit board of the admitted prior art, which has four contact pads or traces.

Claims 5, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yumibe as in claims 3, 7, and 12, and in further view of Schuder et al. ("Schuder").

The Yumibe terminals are arguably not "C-shaped." Schuder teaches a set of contact elements 12 or terminals where the terminals are C-shaped (see figures 2, 10). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the shape of the Yumibe terminals to be "C-shaped" as taught by Schuder. The suggestion or motivation for doing so would have been a matter of design choice depending on for example the stiffness and elasticity of the material used for the terminal.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yumibe as in claim 12, and in further view of Broschard, III et al. ("Broschard").

The Yumibe terminals are arguably not "V-shaped." Broschard teaches a set of contact elements 12 or terminals where the terminals are V-shaped (see figure 6). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the shape of the Yumibe terminals to be "V-shaped" as taught by Broschard. The suggestion or motivation for doing so would have been a matter of design choice depending on for example the stiffness and elasticity of the material used for the terminal.

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**(11) Response to Argument**

Regarding claim 1, Applicant indicates that the Yumibe “says nothing about minimizing space by causing a connector to automatically engage a contact.” However, although Yumibe might never use the words “automatically engage,” the Yumibe connector functions in exactly the same way that the connector of applicant’s invention does, thus inherently “automatically engaging” the mating contacts in exactly the same way that applicant’s connector does.

Regarding claims 18 and 16, applicant argues that the examiner’s indicated motivation for combining was insufficient. The examiner maintains that the various shapes of contacts claimed by applicant, as disclosed by the prior art references Schuder et al. (“Schuder”) and Broschard, III et al. (“Broschard”) are commonly used in various connectors and the various reasons for choosing one common known shape as opposed to another were well known in the art at the time of the invention.

Applicant argues that there was no finding regarding what was the ordinary level of skill. The discussions of the admitted prior art and the cited prior art references relied in the final rejection are specific and particular showings of the ordinary level of skill in the art (see e.g. paragraph 5 of the final rejection). The rejection as set out complies with the standards set out in Graham v. John Deere Co.

Applicant seems to argue that Yumibe teaches away from the invention because the gist of the invention is reliance on known connectors whereas Yumibe discloses a new



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connector. In light of this argument, it is not clear at all what applicant in fact views as the "invention." It appears from the specification that the only difference between the prior art assembly and applicant's assembly is the use of a different connector. If applicant is admitting now that applicant's connector is likewise old, then it is not clear what applicant considers to be the invention. In any case, Yumibe is cited for disclosing the connector which would be used on the prior art assembly. Clearly, Yumibe does not teach away from using the Yumibe




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connector on known assemblies. For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Conferees:

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December 21, 2000

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